REMARKS

Claims 8, 12, 13, 15-17, 19-22 and 25-27 are presently in the application. Claim 1-7, 9-11, 14, 18, 23 and 24 have been canceled. Claims 12, 13, 16, 17, 20-22 and 25-27 have been withdrawn from further consideration as being drawn to a nonelected species.

Claim "15" (actually claim 10) is objected to as repeating limitations found in claim 8. Claim 10 has been canceled and claims 15 and 19 have been amended to depend on claim 8.

Claims 8, 15 and 19 stand rejected under 35 U.S.C. 112, second paragraph, as indefinite. Claim 8 has been amended to overcome this rejection.

Claims 8 and 15 stand rejected under 35 U.S.C. 102(b) as anticipated by Harbison (US 1,935,978).

Looking at applicants' Fig. 5, claim 8 is direcetd to a valve 34 for a high-pressure pump of a fuel injection system, the valve having a valve member 35 which cooperates with a valve seat 44 formed in a housing part on which valve seat the valve member rests when the valve is closed in order to close a bore 32 through the housing part, the valve seat having an at least approximately conical seat face 45 which is located at a transition of the bore from a portion 32a of small diameter to a portion 32b of large diameter, the conical seat face 45 being formed as a section of a cone having a first cone angle, the improvement wherein the conical seat face 45, on its side oriented toward the portion of large diameter, is adjoined by a first conical surface 54 formed as a section of a cone having a second cone angle which is larger than said first cone angle, wherein the conical seat face 45, on its side oriented toward the portion of small diameter, is adjoined by a second conical surface 52 formed as a section of a cone having a third cone angle which is smaller than said first cone angle, wherein the first conical surface 54 is adjoined by a third conical surface 55 formed as a section of a cone

having a fourth cone angle which is larger than said second cone angle, and wherein the second conical surface 52 is adjoined by a fourth conical surface 53 formed as a section of a cone having a fifth cone angle which is smaller than said third cone angle.

In other words, claim 8 requires the conical seat face 45 to be adjoined on both sides by conical faces 52, 54, which, in turn, are each adjoined by at least one further conical face 53 and 55.

Harbison teaches a **concave** valve seat 16 that merges with upper 17 and lower 18 **convex** surfaces. Claim 8, as amended, requires a number of conical surfaces in addition to the conical valve seat. Harbison does not teach a number of conical surfaces in addition to a conical valve seat. Therefore, claims 8 and 15 are not anticipated by Harbison.

Claims 8 and 15 also stand rejected under 35 U.C.S. 103(a) as unpatentable over Citroen (FR 981,999).

The examiner acknowledges that Citroen does not teach the "third" and "fourth" conical surfaces of amended claim 8, but finds the addition of "third" and "fourth" conical surfaces to the structure in Citroen to be an obvious duplication of parts involving only routine skill.

By means of the third and fourth conical faces in amended claim 8, the flow through the valve is further improved compared to the embodiment of the valve in the Citroen reference. In the Citroen reference, it is stated that the valve is supposed to be produced in an especially simple way, by first producing the two conical faces with the angles α and β, then at the transition between these two faces the conical seat face with the angle γ is produced, by forcing a conically shaped part into the transition between the other two conical faces. In the Citroen reference, an improvement in the flow through the valve is not mentioned. Thus,

based on the Citroen reference, one skilled in the art finds no suggestion whatsoever for providing, in addition to the conical faces required for producing the valve seat face, still further conical faces in order to improve the flow through the valve. On the contrary, based on the Citroen reference, one skilled in the art would avoid providing still further conical faces, since they would go against the especially simple method provided in the Citroen reference for producing the valve. Thus, Citroen actually teaches away from the invention defined by claims 8 and 15.

Claim 19 stands rejected under 35 U.C.S. 103(a) as unpatentable over Harbison or Citroen, each in view of Trudeau et al (WO 99/64202).

Trudeau is cited for a teaching of hardening a valve seat. Trudeau, however, does not solve the deficiencies in the Harbison and Citroen references noted above. Thus, even if it had been obvious to combine the teachings of either Harbison or Citroen with those of Trudeau, one of ordinary skill in the art would not have arrive at the subject matter defined by applicants' claim 19.

Entry of the amendment and allowance of the claims are courteously solicited.

Respectfully submitted,

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